



October 21, 2020

*VIA IBFS*

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
45 L Street N.E.  
Washington, D.C. 20554

**Re: SES Americom, Inc. and O3b Limited *Ex Parte* Presentation  
*Space Exploration Holdings, LLC*, Application for Modification  
File No. SAT-MOD-20200417-00037; Call Signs S2983 and S3018**

Dear Ms. Dortch:

SES Americom, Inc. and O3b Limited (collectively, “SES”) submit this letter to respond to inaccurate and deceptive claims made by Space Exploration Holdings, LLC (“SpaceX”) in support of the above-referenced application (the “Modification”). Contrary to the SpaceX attempts to minimize the magnitude of the Modification, the significant, systemwide changes proposed in virtually every aspect of the operating parameters require the Commission to consider the Modification as part of the processing round that closed in May.

Presentations made by SpaceX to Commission representatives ignore the reality that the Modification would degrade the interference environment for O3b and other nongeostationary satellite orbit (“NGSO”) systems and pose a risk to SES’s geostationary satellite orbit (“GSO”) operations.<sup>1</sup> For example, in the materials for SpaceX’s briefing to Nick Degani, Senior Counsel to Chairman Pai, nearly every statement on the slide entitled “RF Compliance Approach: No Significant Interference”<sup>2</sup> is false or misleading, as shown in the following table.

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<sup>1</sup> See generally Petition to Deny or Defer of SES Americom, Inc. and O3b Limited, Call Signs S2983 and S3018, File No. SAT-MOD-20200417-00037, filed July 13, 2020 (“SES Petition”); Reply of SES Americom, Inc. and O3b Limited, Call Signs S2983 and S3018, File No. SAT-MOD-20200417-00037, filed Aug. 7, 2020 (“SES Reply”).

<sup>2</sup> See Exhibit A to Letter of David Goldman, Space Exploration Holdings, LLC, File No. SAT-MOD-20200417-00037 dated Sept. 4, 2020, at unnumbered page 8.

SpaceX Statement	SES Response
The modified constellation will have the “[s]ame sidelobe levels.”	<b>Misleading:</b> Interference effects are driven by the mainlobe size, which has increased substantially.
The modified constellation will have the “[s]ame GSO avoidance angles.”	<b>False:</b> The GSO avoidance angle in the Modification is 18 degrees, <sup>3</sup> while SpaceX previously specified a GSO avoidance angle of 22 degrees. <sup>4</sup>
The minimum earth station elevation angle will be 25 degrees except for gateways in polar regions.	<b>Misleading:</b> SpaceX does not explain that this represents a systemwide change from the previously specified minimum elevation angle of 40 degrees. That change together with the lowered altitude for the SpaceX satellites creates the possibility of conjunction events with the O3b network over a substantial portion of the contiguous United States (“CONUS”) that would have been impossible under the authorized SpaceX system configuration. <i>See</i> SES Petition at 6-9; SES Reply at 4-10.
Lowering the altitude of SpaceX satellites leads to a “smaller spot size” and “fewer satellites in view.”	<b>False:</b> In order to maintain the constellation’s coverage with lower altitude, the Modification greatly increases the downlink beam contour size. In fact, SES provided an example of a beam that more than tripled in size. <i>See</i> SES Reply at 15-16. Moreover, SpaceX lowered the minimum elevation angle to 25 degrees precisely so that it would be able to maintain the same number of satellites in view from its earth stations.

A subsequent SpaceX presentation to the staff of the International Bureau<sup>5</sup> repeats some of these false or misleading assertions and includes several new ones regarding the increase under the Modification in “Nco,” the number of co-frequency simultaneously transmitting satellites, from four to eight. What SpaceX does not say regarding Nco is more telling than what it does say. Critically, although SpaceX acknowledges that the value of Nco is eight, the company does not explain why it defined Nco as one rather than eight for purposes of its calculations regarding compliance with the EPFD limits designed to protect GSO systems.<sup>6</sup> If those calculations are

<sup>3</sup> *See Space Exploration Holdings, LLC*, File No. SAT-LOA-20161115-00118, Attachment A at 41.

<sup>4</sup> *See Consolidated Opposition to Petitions and Response to Comments of Space Exploration Holdings, LLC*, File No. SAT-MOD-20200417-00037, dated July 27, 2020, Appendix A at A8.

<sup>5</sup> *See Exhibit A to Letter of David Goldman, Space Exploration Holdings, LLC*, File No. SAT-MOD-20200417-00037, dated Sept. 14, 2020, at unnumbered page 4.

<sup>6</sup> *See* SES Petition at 16; SES Reply at 18-19.

based on incorrect data, they cannot be accurate. SpaceX's ongoing failure to address this key issue suggests an attempt to affirmatively mislead or stonewall the Commission.

Other flaws in the SpaceX representations with respect to Nco are highlighted in the following table.

<b>SpaceX Statement</b>	<b>SES Response</b>
SpaceX is decreasing its power flux density of 3 dB to "account for" the increase in Nco.	<b>Misleading:</b> A 3 dB decrease in the power flux density has no effect on the factor that drives the interference issues associated with the Modification: the increased likelihood of inline events resulting from SpaceX's decision to lower the minimum earth station elevation angle to 25 degrees.
The interference-to-noise ("I/N") ratio "does not change significantly."	<b>False:</b> SES has shown that in both the uplink and downlink directions, the I/N experienced by O3b would increase by a substantial percentage with the changes sought in the Modification. SES Petition at 7-9.
There is "no impact on geometric in-line events at a given location."	<b>False:</b> SES has shown that the Modification would create new conjunction events with O3b's equatorial satellites over a substantial portion of CONUS where such events would have been impossible with the authorized SpaceX fleet. SES Petition at 6-9; SES Reply at 4-6.
The number of "gateway sites is cut in half."	<b>Misleading:</b> Halving the number of SpaceX gateway earth stations makes coordination with other NGSO systems more difficult by decreasing SpaceX's ability to use earth station diversity to resolve interference concerns.

In short, the SpaceX presentations to the Commission staff contain numerous misrepresentations and outright falsehoods. The Commission should reject SpaceX's request for consideration of its wholly redesigned system as part of the 2016 NGSO processing round and instead include the Modification in the round that closed in May of 2020.

Please address any questions regarding this matter to the undersigned.

Respectfully submitted,

/s/ Suzanne Malloy

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